

5

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

10

15

PATENT

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APPLICATION OF
GRAHAM SPRUIELL

25

FOR

PATIENT USABLE EMERGENCY MEDICAL KIT

30

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DOCKET IMA-0014-OXYPAK

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Background of the invention:

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Field of the invention:

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The present invention generally relates to an emergency medical kit for self-administration or assisted administration of breathable oxygen. A medication is also provided for relief of symptoms of a serious illness. In particular, the emergency medical kit is provided to a person that is prone to or at risk of the serious illness and the kit is intended to be used as soon as symptoms of the serious illness appear or are suspected and up until a the person is treated by a trained medical professional.

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3.2 Description of related art

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It is a particular problem that an unexpected attack of serious illnesses may cause death or serious and irreversible injury. This is particularly a problem during the first moments after the onset of the unexpected attack or symptoms of the illness and up until a time when a trained medical practitioner can medically treat the person. It is well known that prompt medical treatment can greatly reduce the risk of death or of serious permanent injury from an attack of a serious illness. The reason that early treatment of the victim is often successful is that a trained medical practitioner, e.g. in an emergency response team (ERT) or in a hospital, has access to the appropriate equipment and medications that may be needed to save the life of the person or to prevent extensive and irreversible damage to the victim. In heart attack and stroke victims, the main cause of death and or serious permanent injury is mainly due to inadequate oxygenation to affected areas, which may result from reduced blood flow. If prolonged, inadequate oxygenation will lead to death or permanent tissue damage. It is well known that inadequate oxygenation can be relieved by administration of breathable oxygen. Oxygen breathed by a person in trauma increases oxygen saturation in the blood, which

5 decreases the possibility of tissue damage from infarction during an ischemic
event caused by an obstruction of blood circulation such as may occur in heart attack or
stroke or other arterial illness or condition. Moreover, medications are available that may
further benefit a seriously ill patient in crisis during the first moments after the onset of
symptoms. However, it is typical that neither oxygen nor a proper medication is readily
10 available to a victim until after trained medical help arrives or until after the victim reaches a
hospital. By this time, it may be too late.

United States medical figures show that of the 1.1 million people who suffer heart attacks
annually, 40% will die. It is known that some of the fatal heart attack victims may have been
saved had they received medical treatment with the first hour after the onset of symptoms.
15 Unfortunately, only one in five Americans who have a heart attack get to a hospital within
one hour. The situation is similar with stroke victims. Of the 600,000 Americans that
experience a stroke each year, 160,000 of them die and 67% of the survivors suffer from
disabilities. Moreover, the risk of stroke increases dramatically as a person ages past 55 years
old and is especially increased in elderly women. In both heart attack and stroke, a lack of
20 oxygen results in permanent destruction of tissue or infarction. It is well known that a supply
of supplemental oxygen, such as breathable oxygen, can alleviate some of the damage
resulting from infarction and that this is often the first medical treatment provided to an
apparent heart attack or stroke victim by a medically trained person. It is also well known
that various medications including non-prescription medications such as aspirin and
25 nitroglycerin can be beneficial if administered in the first hour after a heart attack or stroke.

Recently it has become more recognized that early medical attention is critical in
reducing permanent damage to tissue from a heart attack or a stroke. In addition, there is a

5 recognized need to better educate both the medical community and the general public about the benefits of; early recognition of the symptoms of a heart attack and especially a stroke; and, the early treatment of a heart attack or a stroke in the minutes following the on set of the symptoms. This is especially true for persons that may be prone to, or have a high risk of, suffering a heart attack or a stroke.

10 Unfortunately, education may not be good enough because the time that it takes for an emergency medical technician, (EMT) to arrive, recognize and treat the symptoms of a heart attack or a stroke victim may be too long. Depending on a victims location, the response period may be between about 15 - 60 minutes, in an urban location, 1 - 2 hours in a rural location or more than 2 hours if the victim is aboard an aircraft or sailing vessel. Meanwhile,
15 even if the victim or a bystander recognizes the symptoms there is usually no readily available oxygen supply or medication source that could be used to prevent death or permanent tissue damage during the first hour, as may be essential.

One solution to the problem has been to place portable emergency medical devices such as an automatic external defibrillator, (AED), including electrode paddles and a DC battery or
20 other power supply in public areas such as in commercial buildings, airliners, ships and installed onto emergency response vehicles. These devices may be used to immediately treat a heart attack victim by defibrillating the heart muscle. Such a device may save the victims life, in the first moments after a heart attack. In a recent US patent, US 6,327,497 by Kirchgeorge et al., and assigned to Life Corporation, an emergency medical kit is taught that
25 includes an AED and a breathable oxygen source housed in a portable unitary casing. The '479 kit also includes an oximeter for measuring oxygenation, a pulse meter, a liquid crystal display (LCD) screen, for providing measurement monitoring, and text display, a voice

5 prompt system and a speaker for providing audio feedback. Although the '497 kit provides an oxygen supply, the inclusion of the AED clearly shows that the device should only be used by a trained medical technician. In addition, the '497 kit does not include any medications.

10 In general, an AED is provided as an emergency response tool that can save the life of a heart attack victim. However, a portable AED requires a portable power supply and it's use and operations are not obvious to an untrained person. In fact, use of an AED is not recommended for an untrained person. It is another shortcoming of an AED that treatment cannot be self-administered. The portable power and electronics of the AED are expensive to manufacture and difficult to use. Accordingly, an emergency medical kit that includes an AED tends to be expensive and therefore not readily available for home use or generally
15 available to a person prone to or at risk of a heart attack or a stroke. Moreover, any kit containing an AED is complex and not likely to be usable by the victim.

20 Accordingly, there is a need in the art to provide a simple low cost and portable emergency medical kit that could save the live of a heart attack or a stroke victim during the first hour after the onset of symptoms. Ideally, the medical kit will be readily affordable for a person prone to or at risk of having a heart attack or a stroke or another serious illness for which early medical treatment could save the life of, or prevent permanent damage to, the victim. Moreover, the medical kit and the treatment should be self-administrable if the victim is alone. Furthermore, the emergency medical kit should be able to be stored and used in the home, an automobile, or any other vehicle and should allow the patient to carry the kit
25 wherever the patient may decide to travel.

Several examples exist for a simple and portable emergency medical kit and carrying case for providing breathable oxygen and some of these are taught in US patents 5,207,303,

5 4,197,842 and 4,438,764. However, these references appear to directed only to use by a trained medical professional and none of these references includes the use or storage of any medications to be administered to or self-administered by a person displaying symptoms of a serious illness such as a heart attack or a stroke.

10 Brief summary of the invention

15 The present invention overcomes the problems cited in the prior by providing a an patient usable emergency medical kit that includes a breathable oxygen supply and a medication that may benefit a person displaying symptoms of one of, a heart attack, a stroke or another medical condition that may cause, infarction of otherwise reduce oxygenation in the victim. The patient usable emergency medical kit is compact and lightweight for easy portability. Moreover, the medical kit requires no power supplies or electronics to provide a potentially life saving treatment. The kit is self-explaining and usually does not require special training to operate or administer the required treatment to a victim of a serious illness and if the 20 victim is able, the treatment provided may be self-administered. The emergency medical kit of the present invention is particularly beneficial for a person that may be prone to or at risk of suffering from a particular medical condition that may result in infarction from an ischemic event or may suffer any risk from otherwise reduced oxygenation. A physician will prescribe the emergency medical kit to a patient that is prone to or at risk of suffering a 25 particular serious illness. The treatment provided by the contents of the kit should at least include the administration of breathable oxygen. The treatment may also include the administration of a medication for assisting in saving the life of or reducing permanent tissue damage in the victim.

5 The emergency medical kit may be stored and carried in a portable bag or container that may include handles and or straps for each of transporting the medical kit and which may also serve to help support the breathable oxygen supply during it's use by attaching the bag or container to the victim.

10 In particular, the invention is an emergency medical kit that includes a breathable oxygen delivery system and may include another medication. The breathable oxygen delivery system includes a portable oxygen tank for storing oxygen under high pressure and the portable oxygen tank may be formed using a composite material over wrapped onto a gas impermeable inner vessel. In that case the portable oxygen tank may weigh as little as 1 1/2 pounds when empty and as little as 2 1/8 full. The emergency medical kit may also include a
15 wireless communication device or a loud noise-making device or both to contact someone in the event of an emergency. A physician will prescribe the oxygen and any other medication for a particular user if the user has a known susceptibility to heart attack, stroke or other conditions that may benefit from oxygenation and a medication.

20 The medications provided may include any one of anticoagulants such as acetylsalicyclic acid, clopidogrel, heparin and glycoprotein IIb/III/b inhibitors, nitrates such as nitroglycerin, cardioprotective agents such as beta blocker, antiarrhythmics such as magnesium and vasoactive agents such as ACE inhibitors.

25 In particular any medication for assisting in preventing thrombosis, assisting in inducing arteriolar relaxation, assisting in establishing cardiac rhythm or assisting in diminishing oxygen demand may be included in the medical kit and may be beneficial in the treatment of heart attack, stroke and or any other arterial conditions that may cause infarction.

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Brief description of the drawings:

The features of the present invention will best be understood from a detailed description of the invention and a preferred embodiment thereof selected for the purposes of illustration and shown in the accompanying drawing in which:

10 FIG. 1 illustrates a medical kit according to the present invention.

FIG. 2 illustrates a patient user using the medical kit according to the present invention.

FIG. 3 illustrates details of a pressure vessel according to the present invention.

15 Detailed description of the invention

Reference will now be made in detail to the preferred embodiments of the present invention, examples of which are illustrated in the accompanying drawings.

Referring now specifically to FIG. 1, the first embodiment illustrates the emergency medical kit 10. The kit includes a breathable oxygen delivery system 15 comprising a
20 portable oxygen tank 20, containing an oxygen supply stored at a high pressure, a regulating oxygen delivery valve 25, for regulating the pressure of oxygen as it exits the oxygen tank, a hollow delivery tube 30 and a facemask 35 for delivering breathable oxygen to a patient. The kit 10 further includes one or more containers of medication 40 and a portable bag or
25 container 45 for storing the breathable oxygen delivery system 15 and the medication 40 therein.

5 As illustrated in FIG. 2 a patient or user is shown using the emergency medical kit 10.
According to the invention, the breathable oxygen delivery system 15 is stored in the portable
bag or container 45, which includes a cover 50 that may be either opened or closed during
use. The bag 45 further includes a strap 52 which is sufficiently long for hanging the bag 45
over the neck of the user, during use, and which may also serve as a shoulder strap for
10 carrying or supporting the bag 45, while in use or otherwise. As shown in FIG. 2 the user
places the facemask over the nose and mouth and breaths normally. The facemask may also
be configured for nose only or mouth only installation. The mask may also include vents,
(not shown), for easy discharge of the exhaled breath of the patient. A head strap 54 or other
securing device is provided to secure the facemask in place during use. Oxygen is delivered
15 to the facemask by the pressure tank 20 via the regulator valve 25 and the tube 30. A handle
55 is provided on the regulator valve 25 for manually turning a valve stem within the
regulator valve for sealing the regulator valve, thereby blocking the flow of oxygen from the
tank 20 during periods of none use. The valve may be manually opened to start the flow of
oxygen to the mask 35.

20 The containers of medications 40 may also be stored in the bag 45, or attached to the
oxygen delivery system 15, or otherwise stored in the kit 10. The bag 45 may also include
one or more external and internal easy open pockets 56 for storing the medication containers
40. In addition, the pockets 56, the medication containers 40, or both, may be clearly labeled
with a name of the medication or with a universal medical symbol such as a graphic character
25 representative of a medication to alert the user or someone assisting the user to the presence
of the medication. In any case, the containers of medication 40 should be clearly marked and
readily available in an emergency. Moreover, the medication and the method of delivering
the medication should be simple enough for an untrained person to administer in an

5 emergency. Preferably the medication may be a liquid or an easy swallowed pill or capsule
that is orally administered by the user or by someone assisting the user. Of course other
means such as a topical or skin patch application, a needle or an air injection are also
possible. In a preferred embodiment, the containers of medication 40 are packaged in manner
suitable for preventing exposure to damaging agents such as water, sunlight, or other agents
10 that may destroy the medications or render them less potent. Accordingly the containers of
medication 40 may be wrapped in moisture resistant or waterproof material such as a shrink-
wrap plastic or resealing clear plastic bag or in a water tight container.

In accordance with a preferred embodiment of the invention, the oxygen tank 20
comprises a carbon/glass/epoxy composite material 70 such as a filament over-wrapped onto
15 a gas impermeable inner vessel 72, shown in partial section in FIG. 3. One such vessel is
taught in US Patent 6,190,481, assigned to Toray Industries in Japan, which is incorporated
herein by reference. An envelope wound pressure vessel particularly suitable for the
preferred embodiment of the present invention is made and distributed by Structural
Composite Industries, (SCI) of Azusa, CA. The pressure vessel 20 may comprise a gas
20 impermeable aluminum liner 70, such as a 6061-T6 alloy, an epoxy resin over wrap material
72 and a carbon/glass reinforcing material. In one example, the tank 20 may have an overall
length 58 of about 7.5 inches and an outer diameter 60, of about 4.5 inches. In this
embodiment, spherically rounded end portions 62 and 64 are provided. The tank internal
volume measures about 67 cubic inches. The tank 20 may further includes a mail threaded
25 boss portion 66 for attaching a regulator valve 25 thereto.

In accordance with the a preferred embodiment of the present invention, the tank 20 may
have a service pressure of up to about 3000 pounds per square inch, (PSI) and a test pressure

5 of up to about 5000 PSI. Of course higher and lower pressures may also be used. In the
present example, the tank 20 has an empty weight of 1.5 pounds and a filled weight of 2.12
pounds, not including the regulator valve 25. The tank 20 is operable over a temperature
range of about -60 degrees F to +140 degrees F and has a service life of up to about 15 years.
Finally the tank 20 should be approvable by the Food and Drug Administration, FDA for the
10 storage of breathable oxygen and the tank may be refillable after use. Of course other tanks
designs are usable without deviating from the scope of the present invention, including an all-
metal tank, an all-plastic tank or combinations of metals, plastics or various composite
materials. However, it is particularly desirable for portability and ease of use that the tank 20
when full weight less than about 5 pounds so that the entire emergency medical kit weight is
15 light enough to provide easy portability. Such features have heretofore not been readily
available for use as an FDA approved oxygen storage vessel for medical application of
breathable oxygen.

The oxygen regulator valve 25 is attached to the tank 20 and receives high-pressure
oxygen from the tank 20 at an inlet pressure in a range of about 250 - 3000 PSI and delivers
20 low-pressure oxygen to the flow tube 30 at an outlet pressure in a range of about 20 - 50 PSI.
Of course the valve may also receive and deliver a wider range of pressures, for example,
regulator valves may be provided for operating with an inlet pressure of between 100 - 4000
PSI and an outlet pressure ranging from about 1 PSI up to about 100 PSI. The valve 25 may
also include a handle 55 for opening and closing the valve 25 and for adjusting the flow rate
25 to the tube 30. In one embodiment, the valve handle 55 may have a plurality of positions
each associated with a different flow rate for passing oxygen to the tube 30. The flow rates
may be adjustable in a range of about 20 cubic centimeters per min up to 60 liters per minute.
In most applications for providing breathable oxygen to a patient, a recommended flow rate

5 will be in the range of about 3 to 8 liters per minute, (LPM) and may vary according to the
needs of the particular patient. In order to provide an appropriate flow rate to a patient, the
regulator valve 25 may include a stop device such as a movable pin 68 for stopping the
handle at a desired orientation when the valve is turned to a position that delivers the
appropriate rate. Otherwise the valve handle 55 or the regulator valve 25 may be marked
10 with flow rate indicating marks. Alternately, a flow meter may be provided for measuring a
flow rate to the patient such that the flow rate may be adjusted by turning the valve 55. In the
preferred embodiment described herein, a flow rate is preferable set at 6 LPM. In the
simplest embodiment, a flow rate of 6 LPM would be achieved by turning the handle 55 to
the full on position. Using the tank 20 described above which has an initial operating
15 pressure of 3000 PSI and an internal volume of 67 cubic inches, the tank 20 will provide
oxygen to a patient for about 39 minutes. Of course, if longer times are desired, the tank 20
may include a larger volume vessel or store the oxygen at an increased pressure.

A preferred embodiment of the container for storing the breathable oxygen supply 15 and
medications 40 comprises a flexible and soft bag 45 shown in Figs. 1 & 2. The bag 45 may
20 comprise nylon, canvas or another conventional flexible bag material. The bag 45 may
include a cover 50, which is held closed by clamps 74, so that the materials of the kit may be
held inside the bag. As stated above the bag 45 may include one or more internal or external
pockets 56 for securing medications 40 therein or for storing other personal affects of the
patient including other medications that may be taken in non-emergency situations. The
25 pockets 56 may be sealed by a zipper, a clamp, VELCRO or by any other convenient sealing
device. The bag 45 is preferably weather and tear resistant and may provide a cushioning or
padding for protecting the contents thereof in the event the bag is dropped. The bag 45 may
also include one or more handles 76 and or straps 52.

5 Numerous medications are known to be beneficial to a victim of a heart attack or a stroke. It has been shown that effective treatment of acute myocardial infarction, (heart attack), may include oxygen, agents affecting thrombus formation, nitrates, beta blockers, antiarrhythmics and morphine. (See GENERAL PHARMACOLOGIC TREATMENT OF ACUTE MYOCARDIAL INFRARCTION by, Anne Warden Shannon MD and Richard A, Harrigan MD, Temple University Hospital) Where it is known that a person is at risk of a heart attack, 10 a medical kit of the present invention is prescribed by a physician and the medical kit would at least include a breathable oxygen supply and one or more of the other treatments. At the present time, oxygen and most medications, must be prescribed by a physician in the United States. However, it is possible that the kit of the present invention may become available 15 over the counter especially outside the United States and may be used with prescribed or over the counter medications.

The administration of breathable oxygen, which is the first and foremost recommended treatment for a heart attack and for a stroke, is here addressed by the use of the breathable oxygen supply described above. In this case oxygen is prescribed by a physician like any 20 other medication and has the effect of increasing oxygen saturation in the blood when the person is in trauma. Oxygen may be prescribed to treat any attack that may result in reduced oxygenation in the blood caused by thrombosis ischemic events or any reduced blood flow. The immediate administration of oxygen reduces the risk of infarction and may prevent death.

25 The second treatment includes agents affecting thrombus formation or blood clotting. Antithrombotics are known to be beneficial in both heart attack and stroke and in a variety of other arterial conditions that may cause infarction and or reduced oxygenation to the affected

5 area. Agents affecting thrombus formation may include anticoagulants, or antiplatelets, which inhibit platelet aggregation.

In particular, oral antiplatelet agents have been established as essential in the management of a heart attack victim and these specifically include acetylsalicylic acid or aspirin and clopidogrel. Aspirin irreversibly inhibits platelet cyclo-oxygenase, which subsequently prevents the formation of thromboxane A₂. This, in turn, impairs platelet aggregation. Clopidogrel inhibits adenosine diphosphate (ADP)-mediated platelet aggregation. A new aspirin-dipyridamole combination agent that has received FDA approval for stroke prevention is also an excellent candidate for use in either stroke or heart attack treatment during the first hours. One study has shown that aspirin can reduce the risk of death by up to 23% if administered when a heart attack is suspected and for 30 days thereafter. This represents a potential for saving 10,000 lives per year in the United States alone. Clopidogrel has been found to be effective in reducing the combined risk of ischemic stroke, heart attack, or death from vascular disease and is therefore a medication candidate for emergency treatment of stroke, heart attack or vascular disease during the first hours. However, because aspirin and clopidogrel affect platelet function by different mechanisms, they may be usable in combination to achieve greater benefit. Accordingly, aspirin and clopidogrel each make an excellent candidate for inclusion in the medical kit of the present invention because each medication may provide a substantially immediate benefit to a victim of stroke, heart attack or vascular disease.

25 Other medications that may be used also include cardioprotective agents, e.g., beta-adrenergic antagonists (Beta Blockers), antiarrhythmics, such as magnesium, and other vasoactive agents such as angiotensin converting enzyme (ACE) inhibitors. Beta Blockers

5 may diminish myocardial oxygen demand by reducing heart rate, blood pressure and
contractility. Beta Blockers have also been shown to decrease cardiac ischemia-reducing
myocardial wall stress and infarct size. They have also been shown to decrease ventricular
arrhythmias (including ventricular fibrillation) and to improve left ventricular function. In
short, Beta Blockers have a well-established, evidence-based role in both emergency and
10 follow-up care of heart attack victims as a means to short-term mortality reduction.

Magnesium has several potential mechanisms of action that can benefit heart attack
victims. It can decrease the rate of arrhythmias by enhancing membrane stability and
reducing the effects of free radicals. It also causes coronary vasodilatation, afterload
reduction, calcium antagonism, and has antiplatelet activity. Angiotensin-converting enzyme
15 inhibitors, (ACE) inhibitors, can be helpful early in the treatment of a heart attack and ideally
after thrombolytic therapy has been given and the blood pressure is known to be stable.
Benefits of ACE inhibitors include suppression of the sympathetic and renin-angiotensin
systems, and enhanced collateral coronary blood flow in addition to ventricular remodeling.
Patients with conditions such as anterior wall myocardial infarction, previous infarction,
20 congestive heart failure, or tachycardia seem to derive greater benefit from treatment with
ACE inhibitors. Some examples of Beta Blockers and Calcium channel blocking drugs are
listed below in TABLE 1.

Drug	Usual Dose	Side Effect	Contadictions
BETA BLOCKERS			
Propranolol	20-80 mg qid	Depression, constipation, impotence, bronchospasm, heart failure, bradycardia	Asthma, AV conduction block, heart failure
Metoprolol	25-200 mg bid	As above	As above
Atenolol	50-150 mg once daily	As above	As above
CALCIUM CHANNEL BLOCKING DRUGS			

Nifedipine XL	30-90 mg daily	Hypotension, flushing, edema, worsening angina	Hypotension, intolerance of side effects
Diltiazem SR	60-120 mg bid	Constipation, AV conduction block, worsening heart failure	AV conduction block, impaired LV function, bradycardia
Verapamil SR	180-240 mg daily	Constipation, AV conduction block, worsening heart failure	AV conduction delay, impaired LV function, bradycardia
Amlodipine	5-10 mg daily	Edema	Intolerance of side effects

TABLE 1

Nitrates have the effect of relaxing vascular smooth muscles, which helps to dilate both arterial and venous beds, although venous effects predominate. Nitroglycerin is a commonly recommended nitrate that provides dilation of post capillary vessels, including large veins, promotes peripheral pooling of blood, decreases venous return to the heart, and reduces left ventricular end-diastolic pressure (preload). Nitroglycerin also produces arteriolar relaxation, thereby reducing peripheral vascular resistance and arterial pressure (afterload), and dilates large epicardial coronary arteries. The use of nitrates upon the onset of heart attack symptoms has long been recommended. Some examples of nitrates dosage, side effects and contradictions are provided in TABLE 2 below.

Drug	Usual Dose	Side Effects	Contraindications
NITRATES			
Sublingual NTG	0.3-0.6 mg	Flushing, headache	Intolerance of side effects
Isosorbide dinitrate SR Oral Sublingual	10-60 mg q8h 2.5-10 mg q4-6h	Flushing, headache, tolerance after 24 h	As above, worsening ischemia on withdrawal
Transdermal NTG patch	0.4-1.2 mg/h for 12-14 h	Flushing, headache, tolerance after 24 h	As above, worsening ischemia on withdrawal
Isosorbide-5-monitrate Oral Oral SR	20-30 mg bid 60-240 mg once daily	Flushing, headache, tolerance after 24 h	As above, worsening ischemia on withdrawal

TABLE 2

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Ref

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According to the present invention, a person that has had a previous heart attack, has arterial or venous disease or is at high risk of either would carry a medical kit that includes breathable oxygen and a medication that may reduce the tendency for blood clotting, reduce the need for oxygen, slow the heart rate, maintain cardiac rhythm relax the arteries and veins or protect the brain from secondary injury caused by stroke. The medication type and dosage will be predetermined by a physician in advance and packed in the kit of the present invention. The kit could be provided for everyday availability or to a person or could be provided to person temporarily if the person will be far from medical attention, e.g. in a remote area or on a sailing vessel. The selection of the medication will be determinable by the personal physician of the person. Thus according to the present invention, the emergency kit may include anyone of the above listed agents that affect thrombus or blood clot formation including acetylsalicyclic acid, aspirin-dipyridamole, clopidogrel, heparins and glycoprotein IIb/IIIa inhibitors. The kit might also include various so-called cardioprotective agents such as beta-adrenergic antagonists (Beta Blockers), antiarrhythmics such as magnesium, angiotensin converting enzyme (ACE) inhibitors and other agents affective in treating cardiac trauma. In particular, the present invention may comprise breathable oxygen in combination with any medications which may be provided either individually or in combination as prescribed or otherwise recommended by a physician or health professional to prevent death, reduce permanent damage or alleviate pain in the event of a heart attack, stroke, arterial trauma or any other attack of an illness that may be alleviated by breathable oxygen and medication in combination. In addition, the patient to whom the medical kit is provided should be informed of what symptoms or indications to look for and be instructed in the use of both the oxygen and the medication in the case of an emergency. The kit is portable so that it may be carried by the patient when traveling or readily available

5 in the home or vehicle of the patient should an attack occur. In addition to the above, the
emergency medical kit of the present invention may also include a wireless emergency
communication device such as cell phone or emergency call transponder device to alert a
local emergency medical team or to directly alert the patient's physician in the event of an
emergency. The kit may also beneficially include a loud noise-making device such as a
10 whistle or air horn should the victim need to draw attention to him or her in the event of an
emergency. However, it is pointed out that according to the present invention, no electrical
device is required for providing treatment.

It will also be recognized by those skilled in the art that, while the invention has been
described above in terms of preferred embodiments, it is not limited thereto. Various features
15 and aspects of the above-described invention may be used individually or jointly. Further,
although the invention has been described in the context of its implementation in a particular
environment, and for particular applications, e.g. in a portable emergency medical kit, those
skilled in the art will recognize that its usefulness is not limited thereto and that the present
invention can be beneficially utilized in any number of environments and implementations.
20 Accordingly, the claims set forth below should be construed in view of the full breadth and
spirit of the invention as disclosed herein.